Position-Sensing Transition-Edge Sensors for Constellation-X

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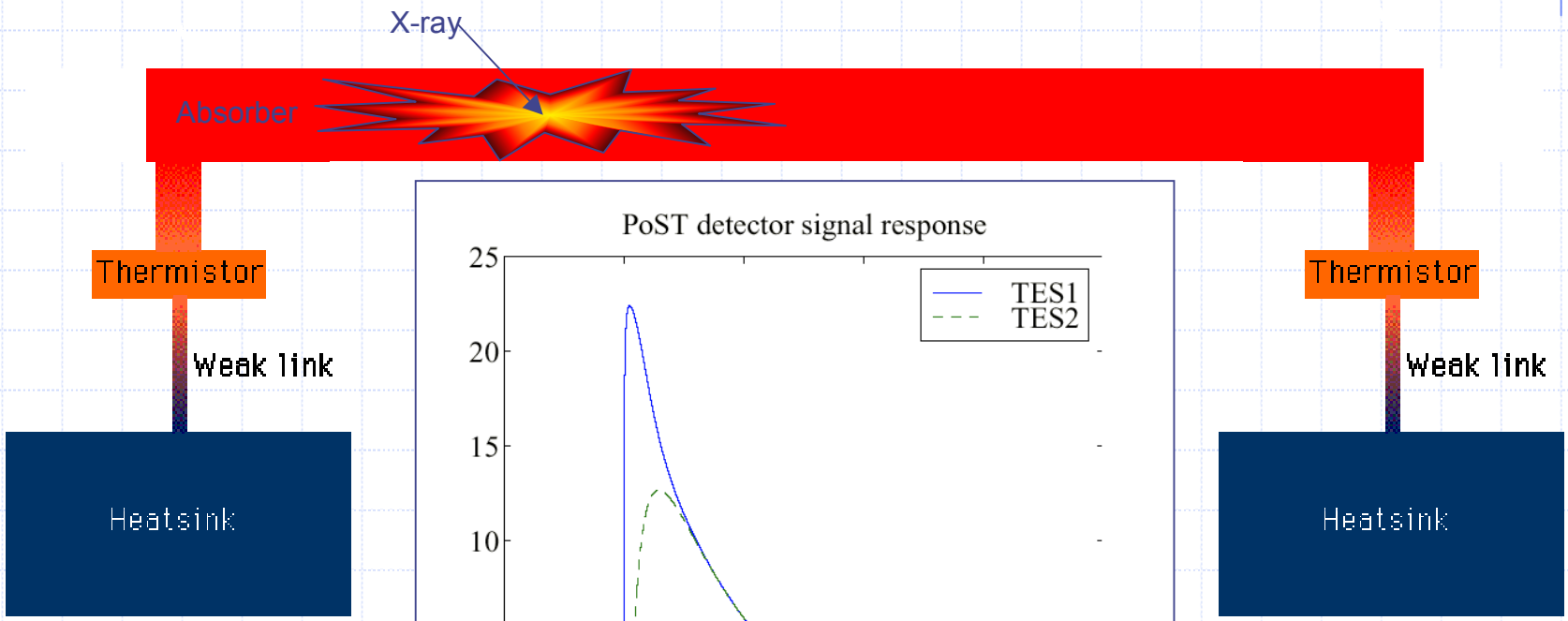
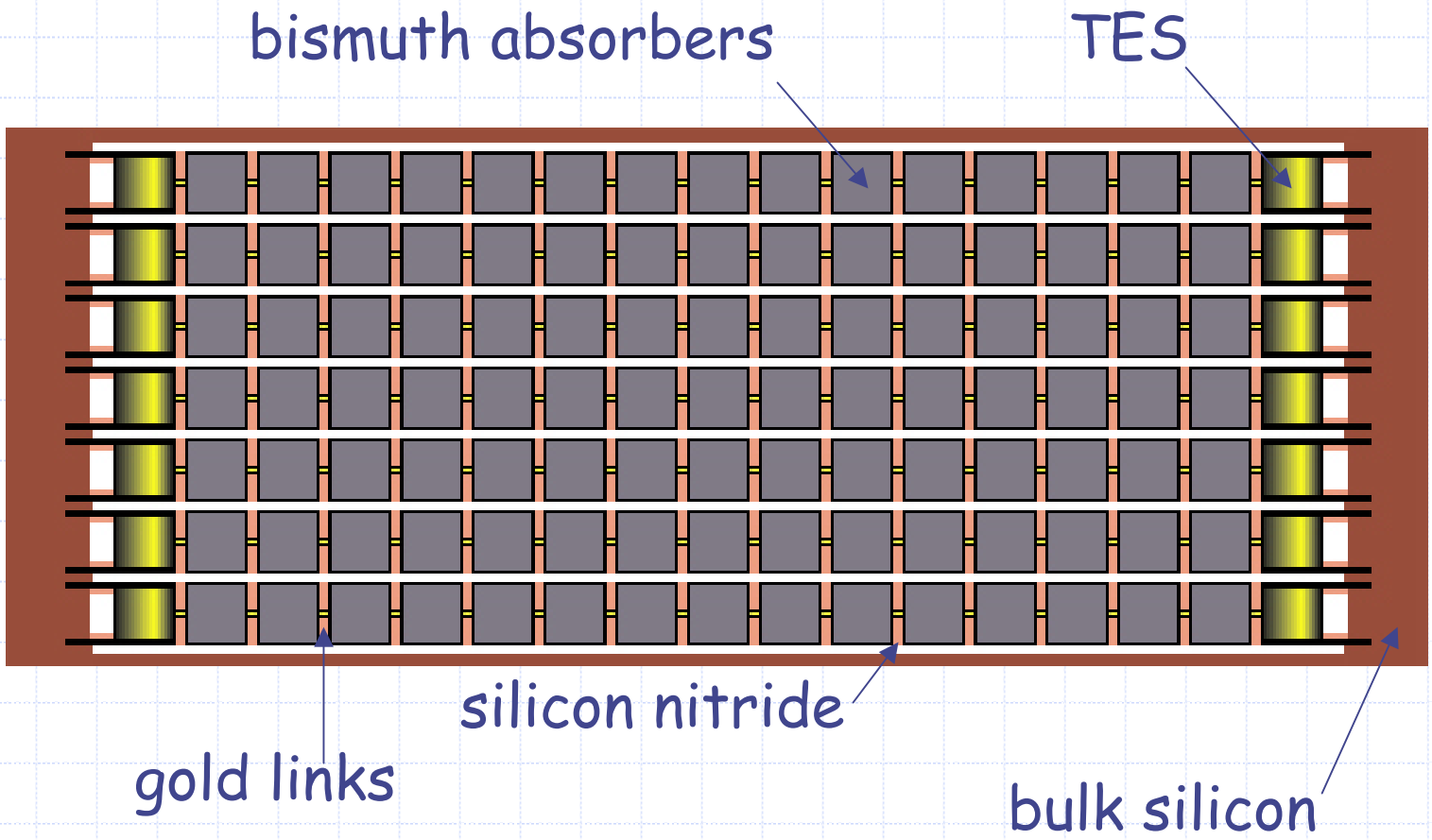


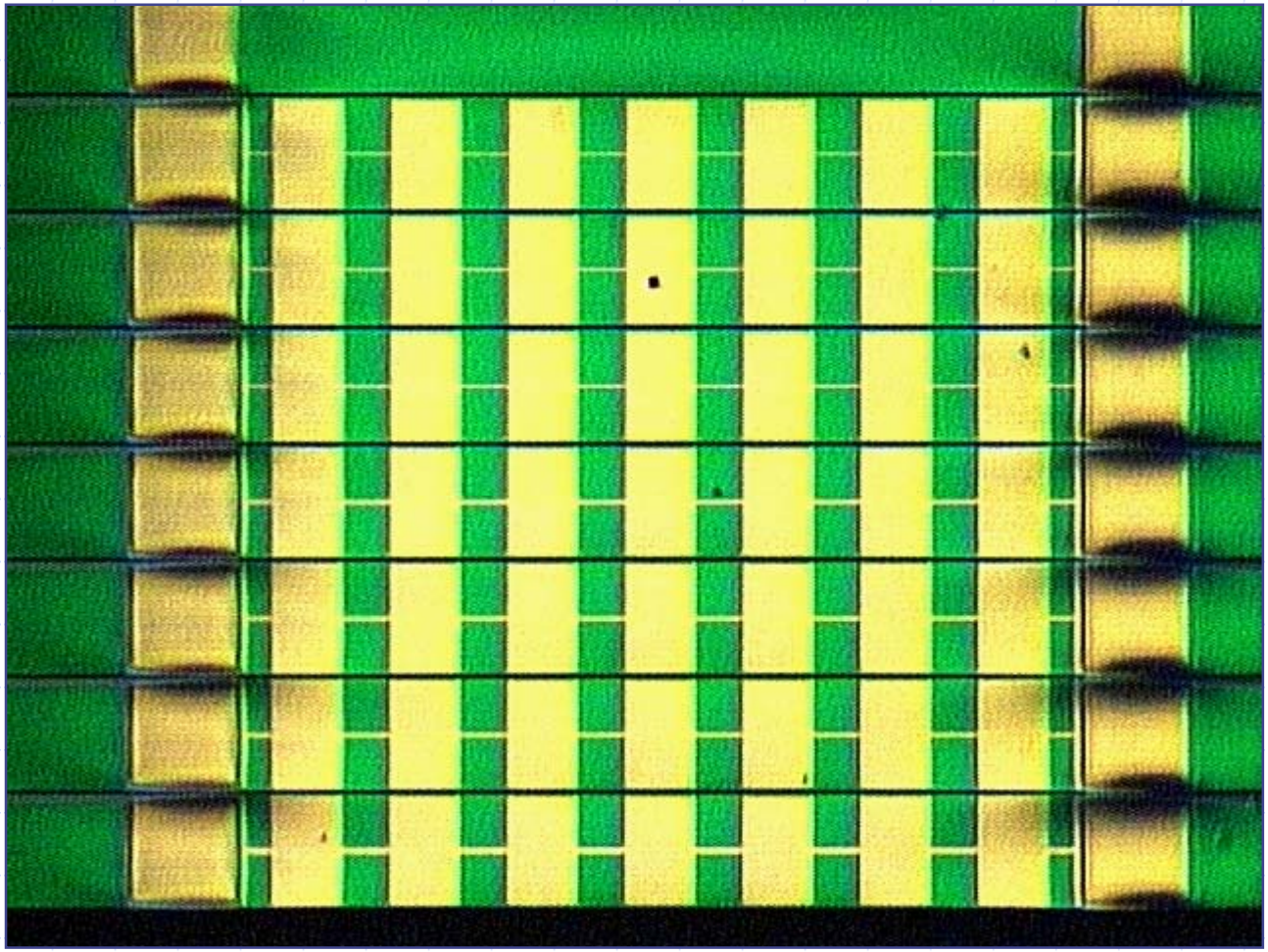
By looking at peak heights, the position of the event can be determined. By integrating both pulses, the energy can be determined.

PoST concept



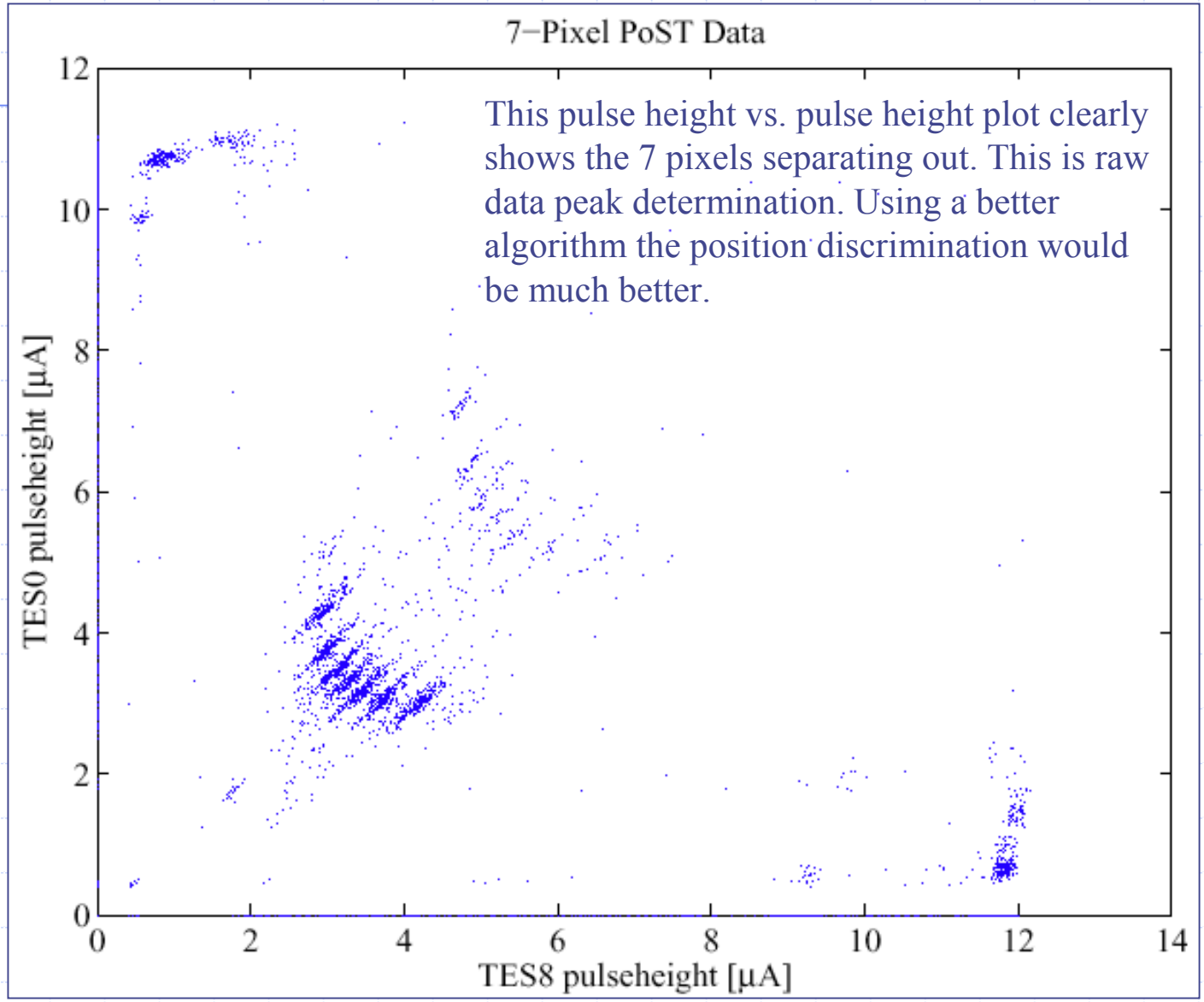
Pixellating the absorber makes the position determination a feature of the device. The position becomes discrete instead of continuous, making the analysis much simpler.

7-pixel PoST



We have fabricated 7- and 15-pixel PoST arrays, like the one above. Here this array has 49 pixels read out by 14 TESs.

First data ever from a PoST!!!



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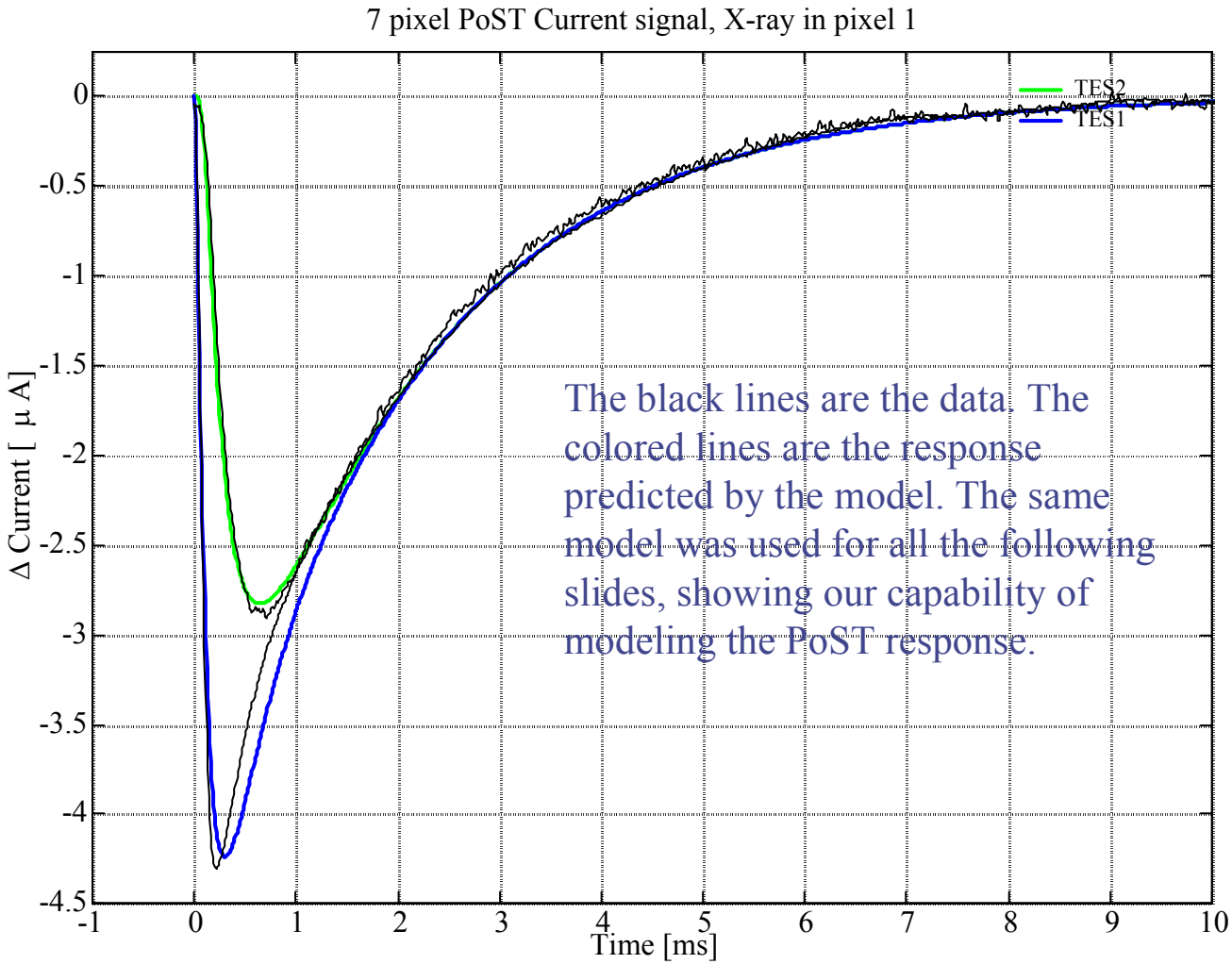
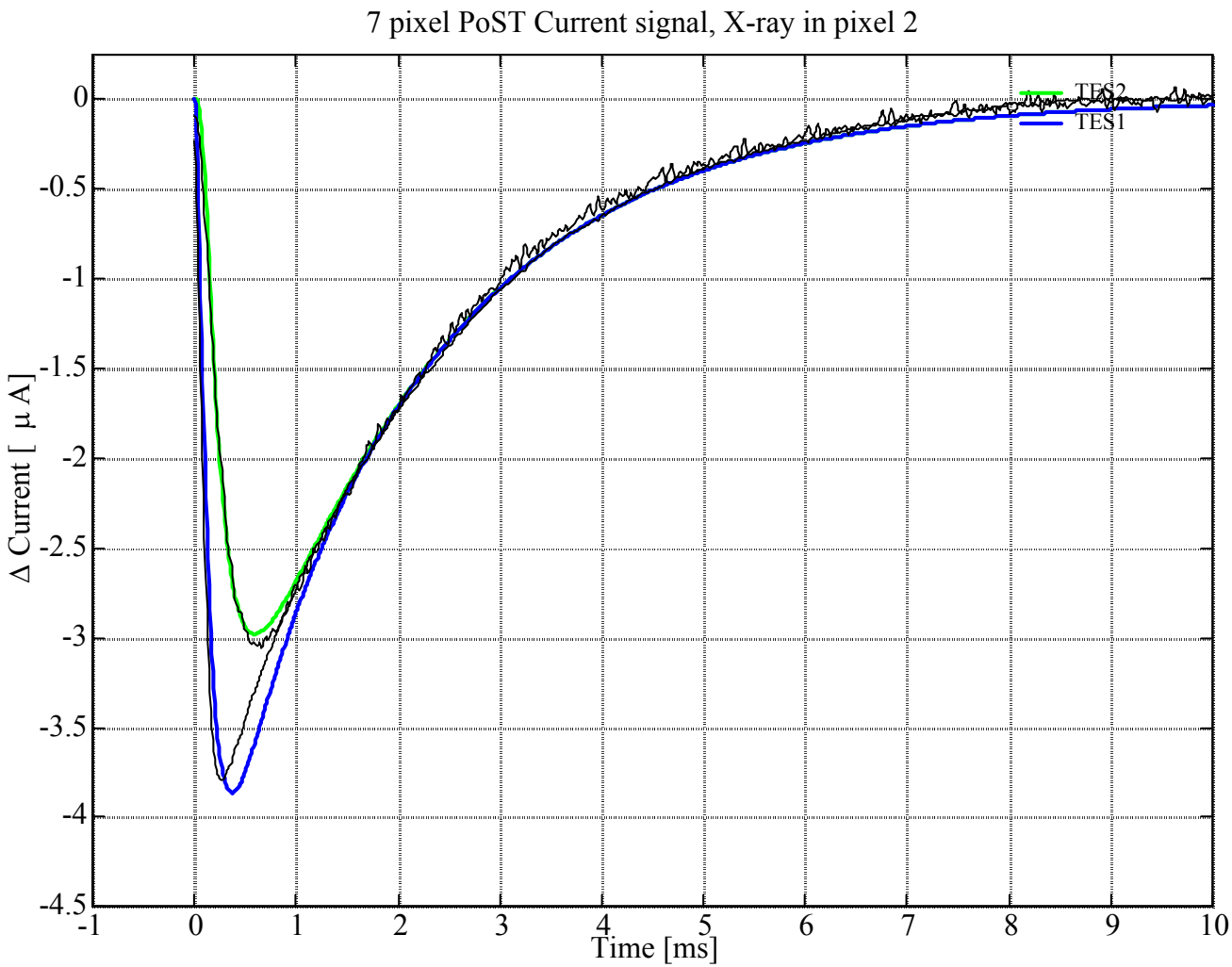
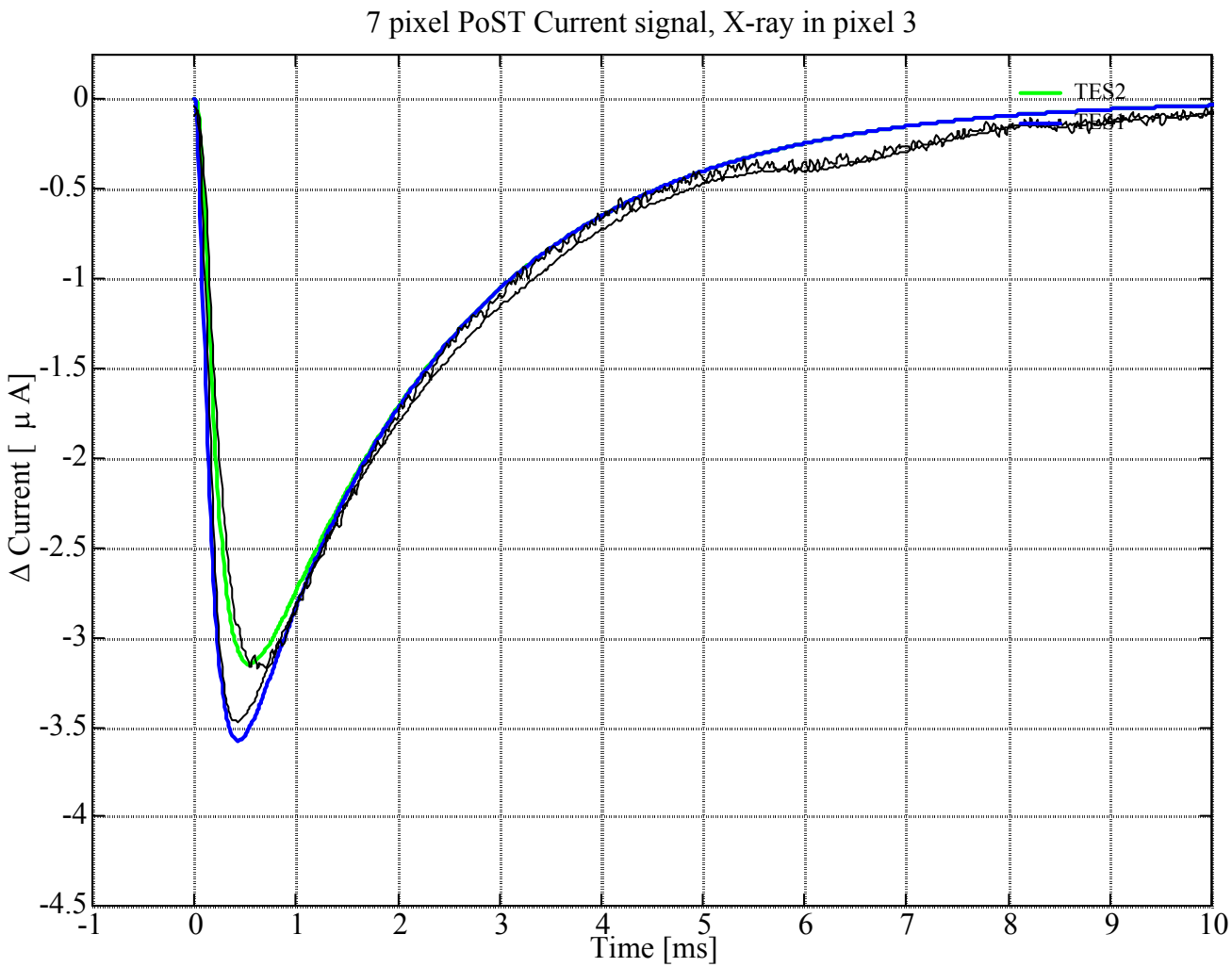


The black lines are the data. The colored lines are the response predicted by the model. The same model was used for all the following slides, showing our capability of modeling the PoST response.

First data ever from a PoST!!!



First data ever from a PoST!!!



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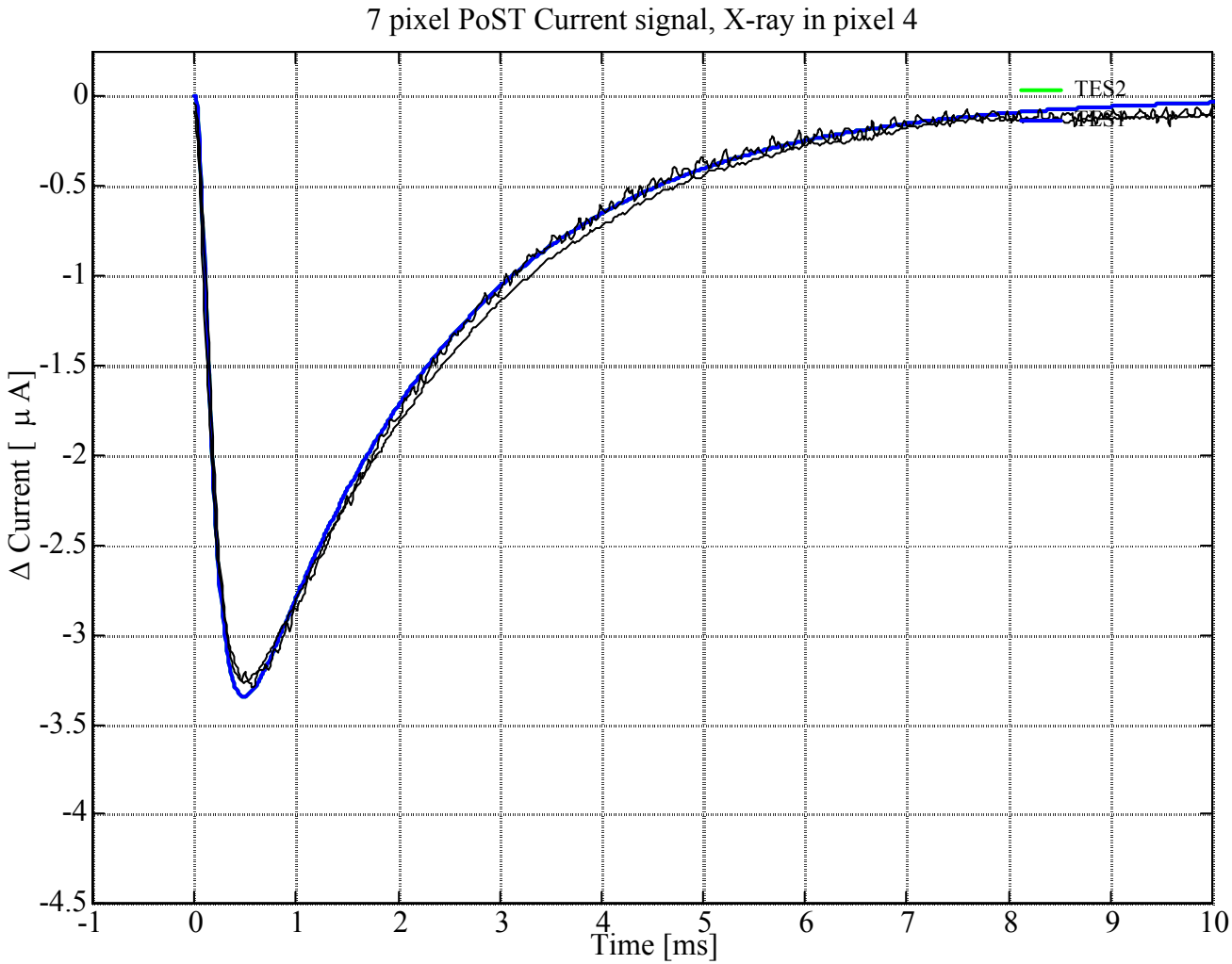

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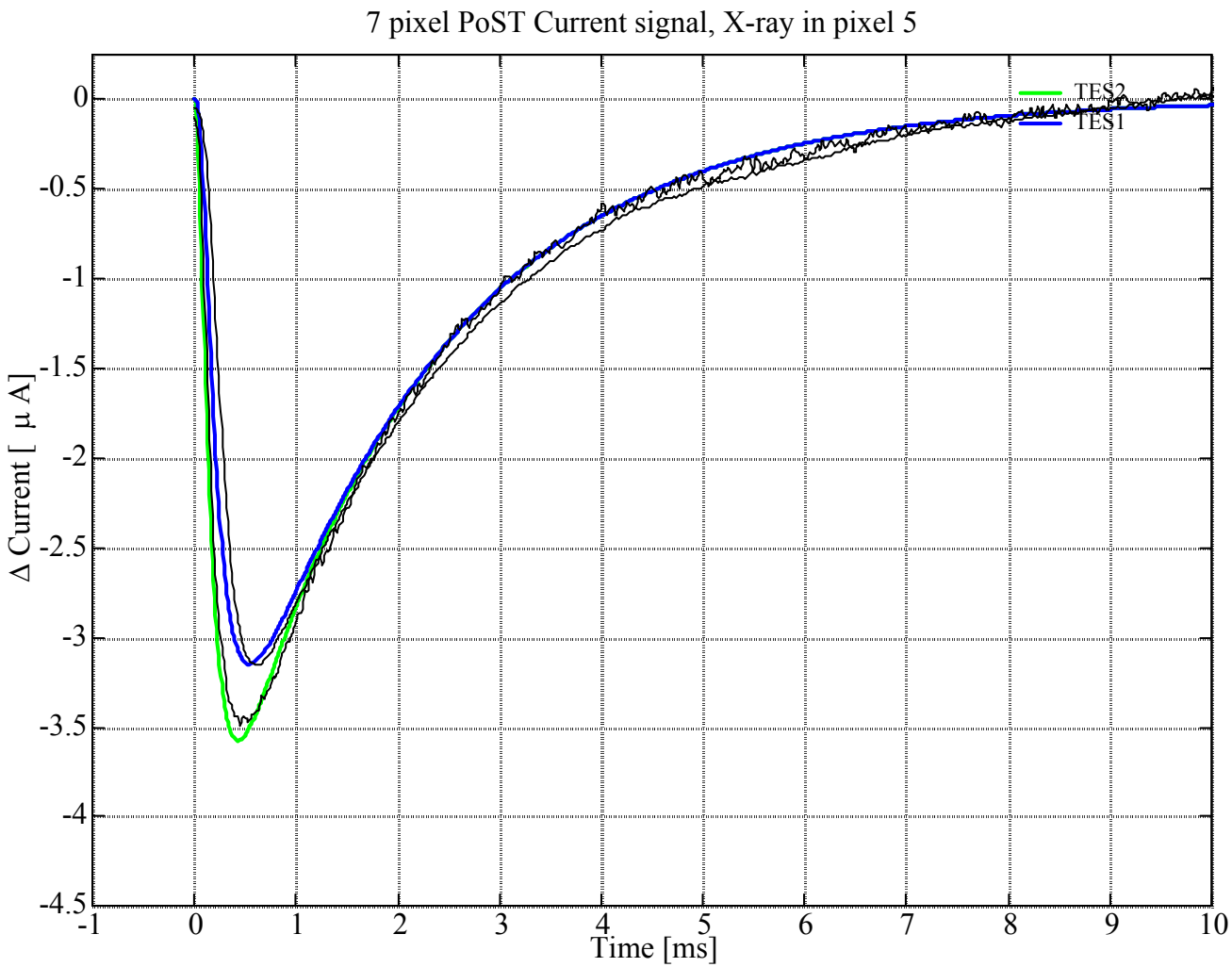

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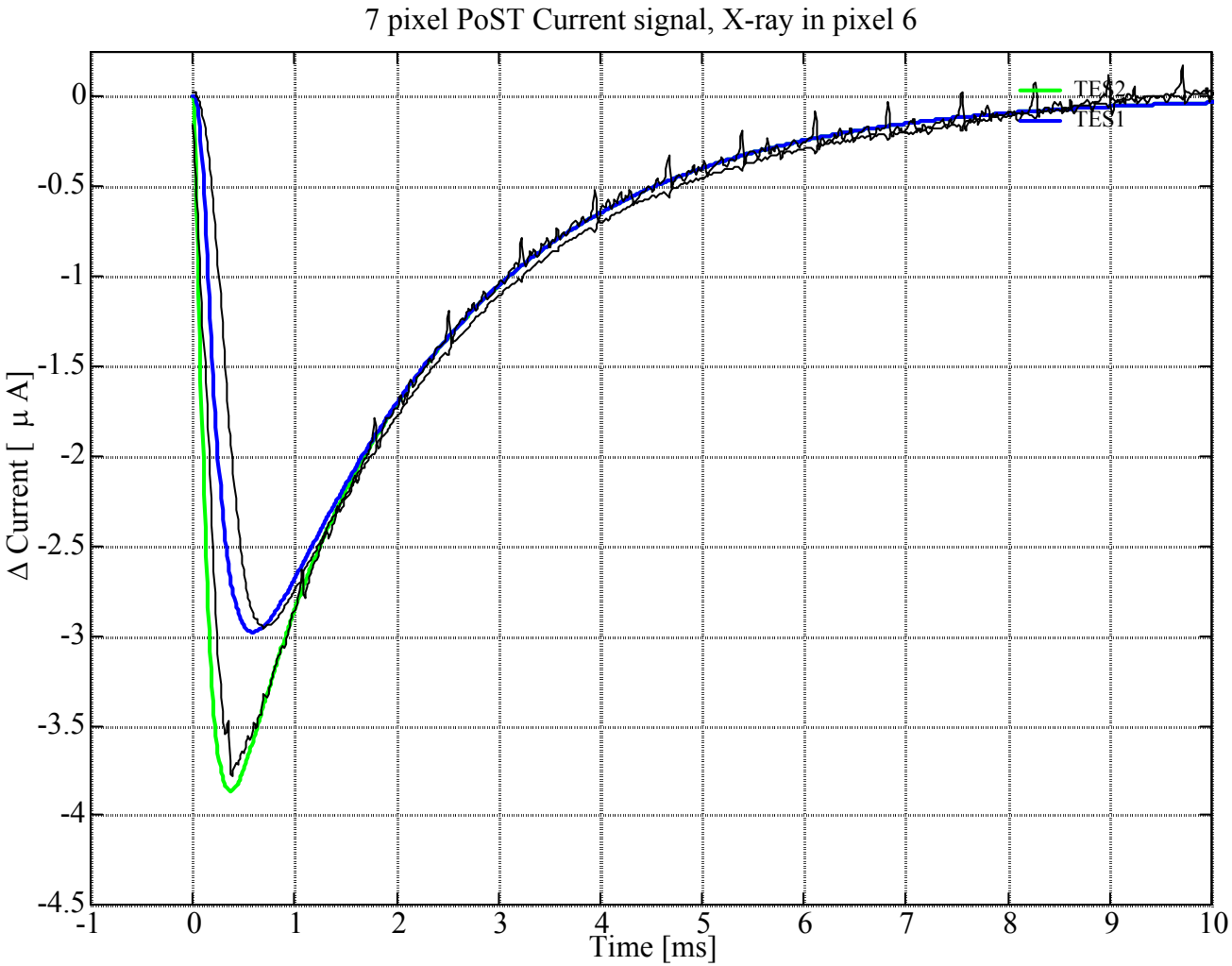

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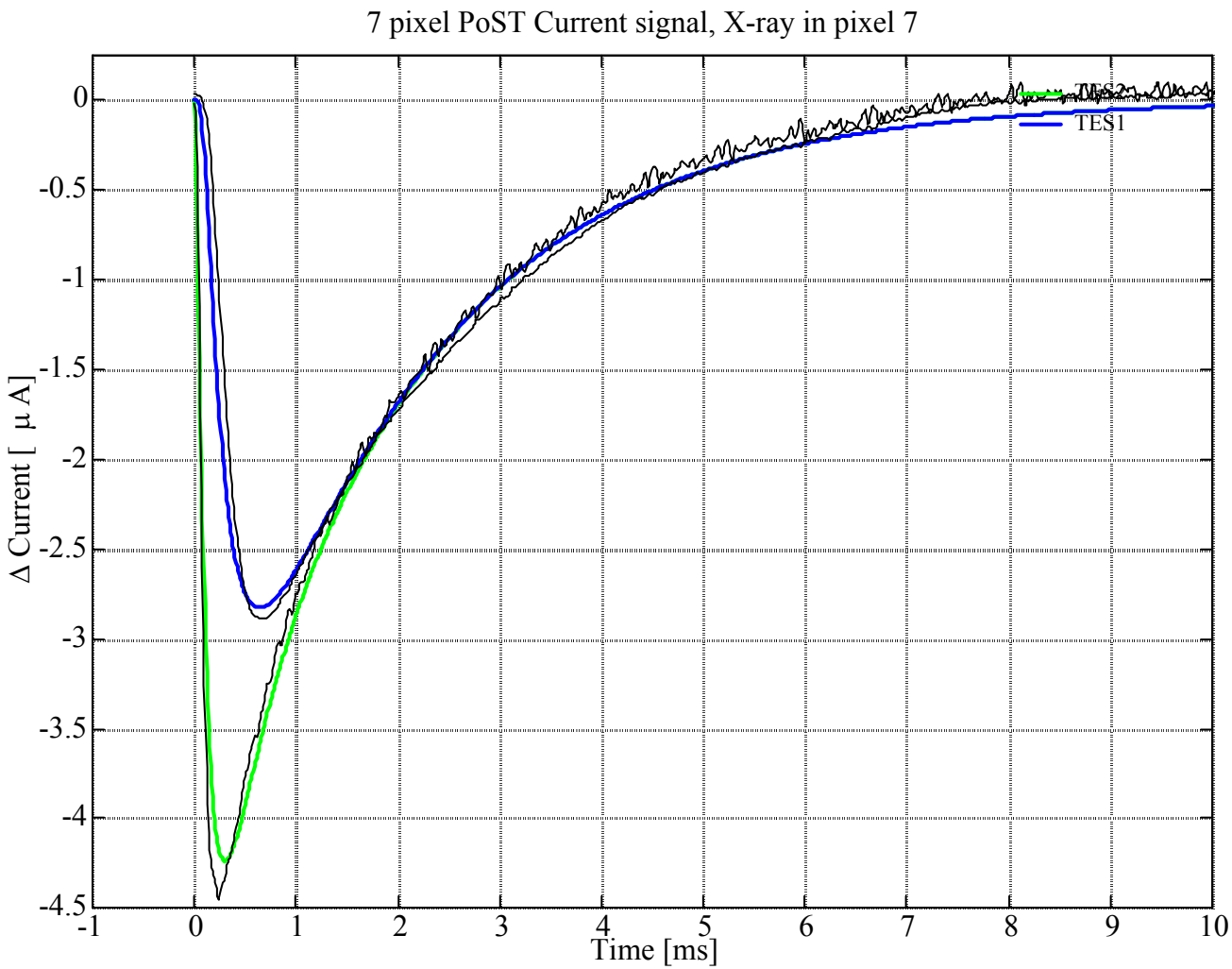

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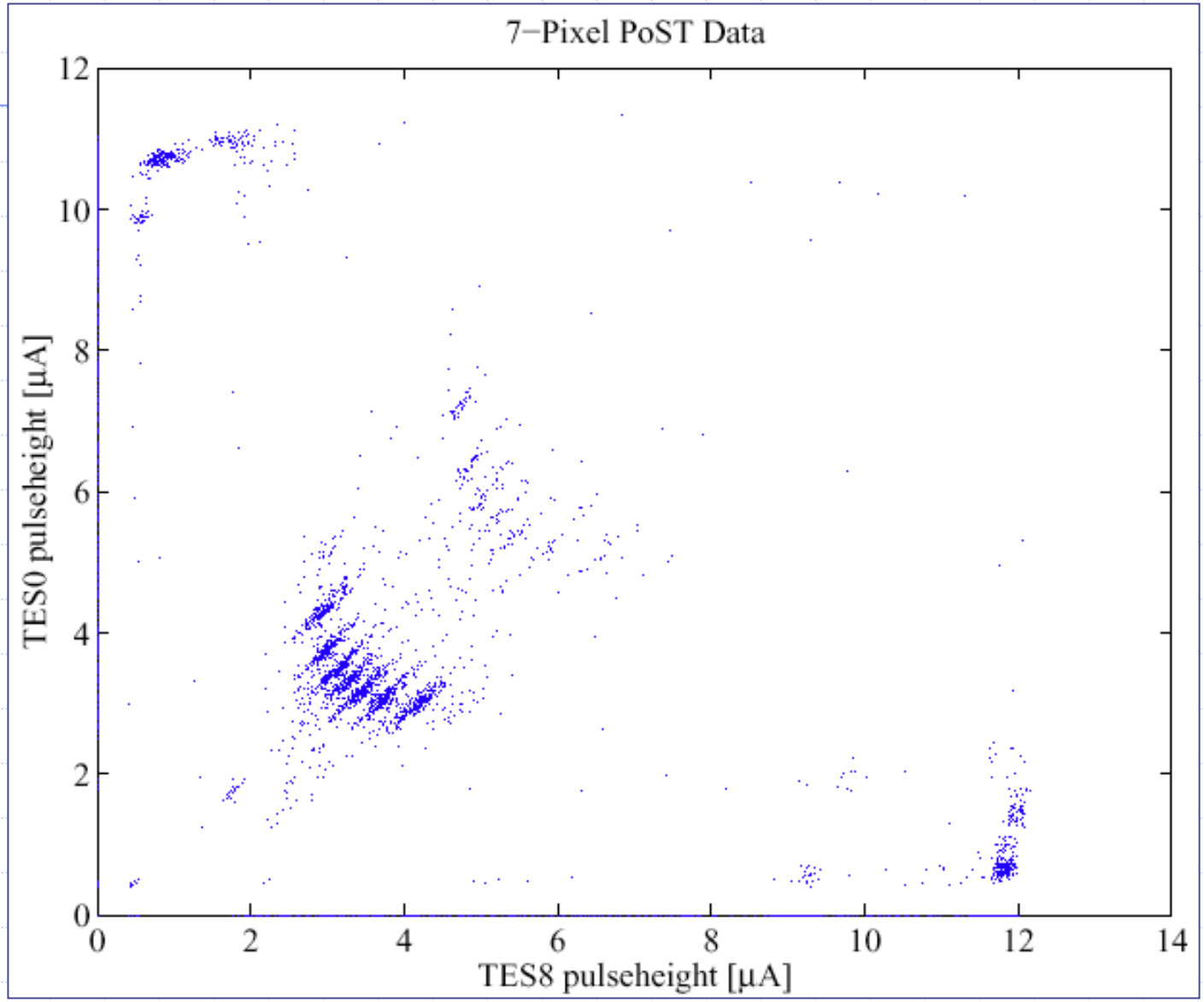
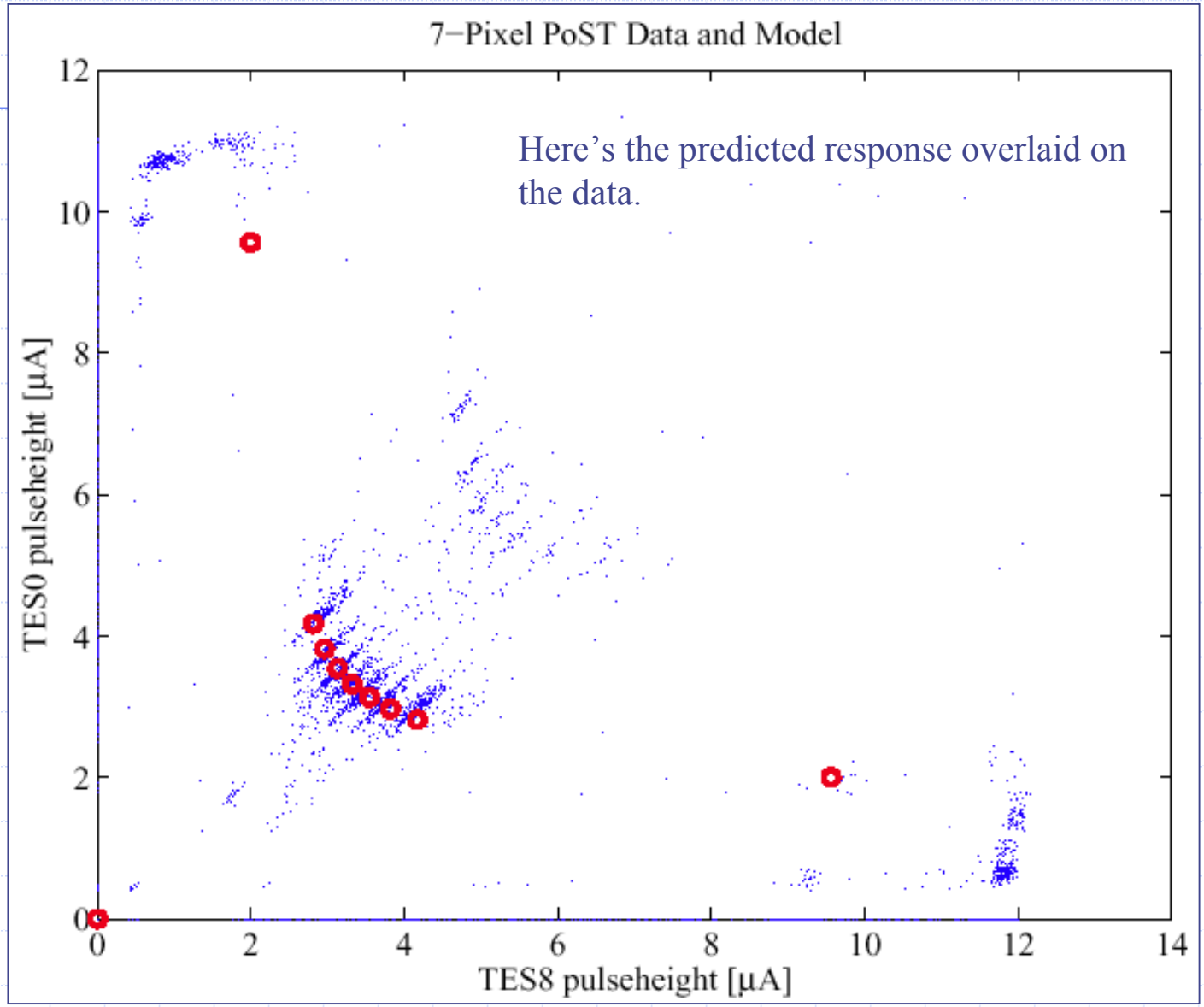
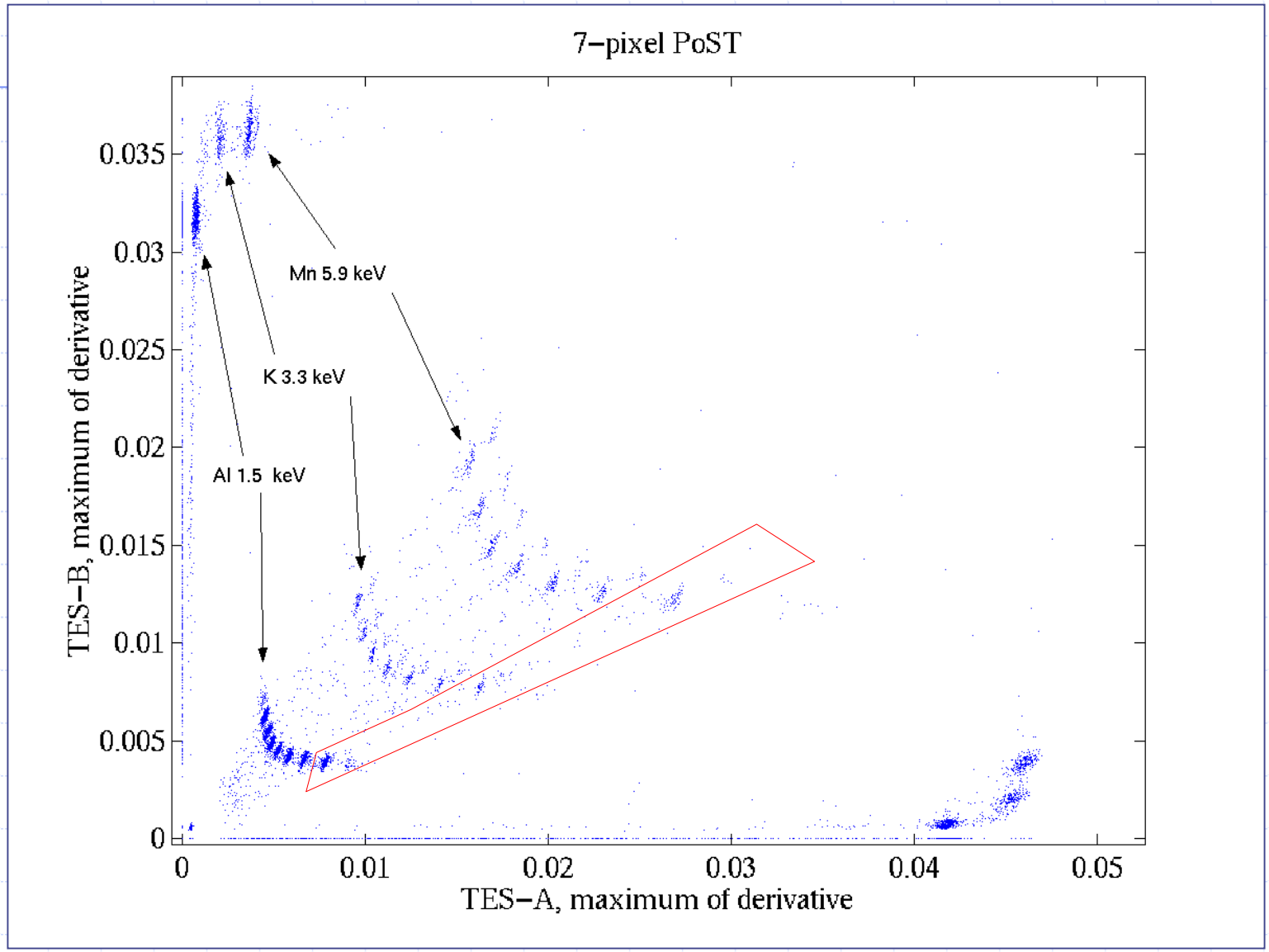


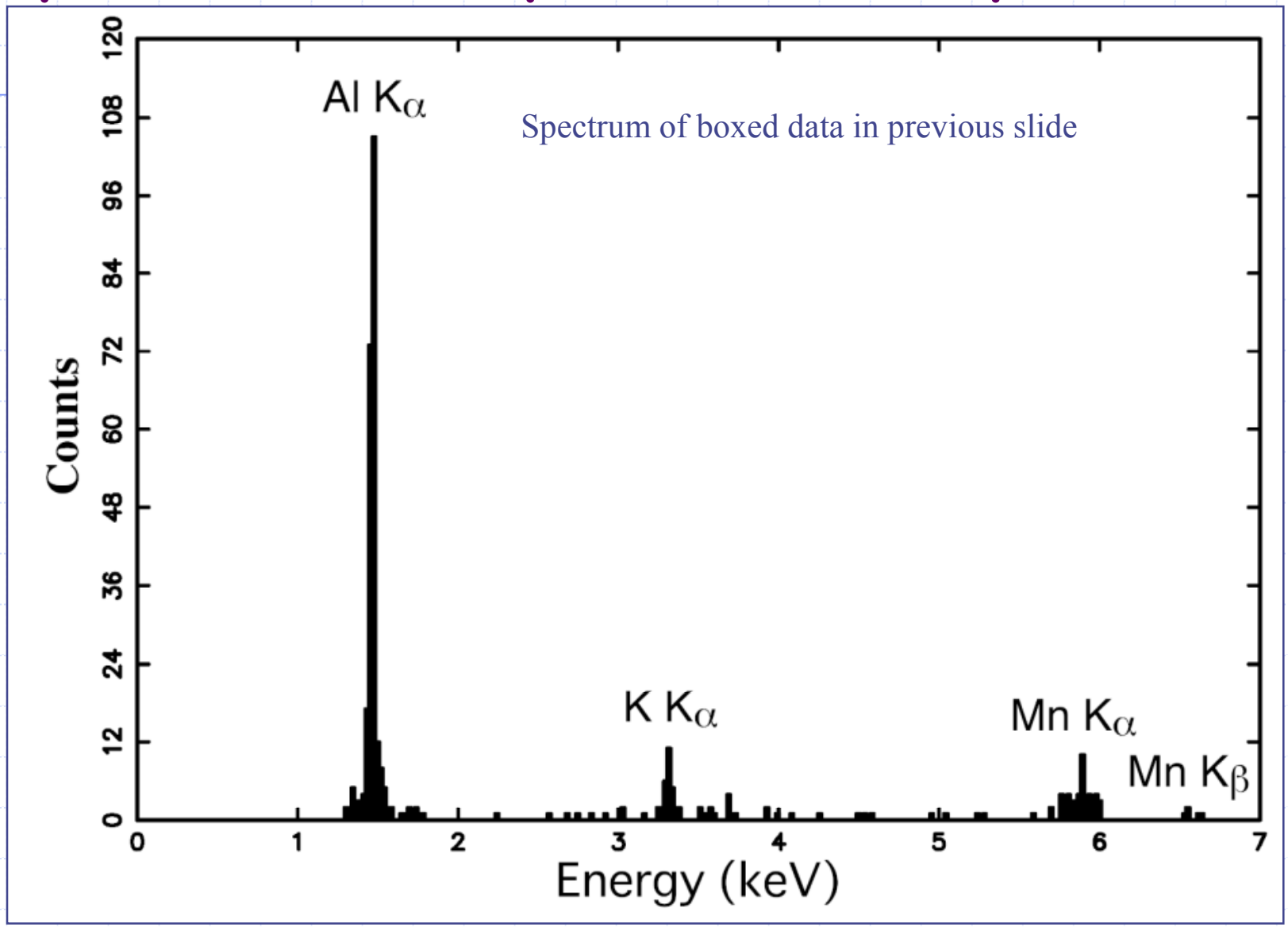
PoST model with Gta=Ga/10



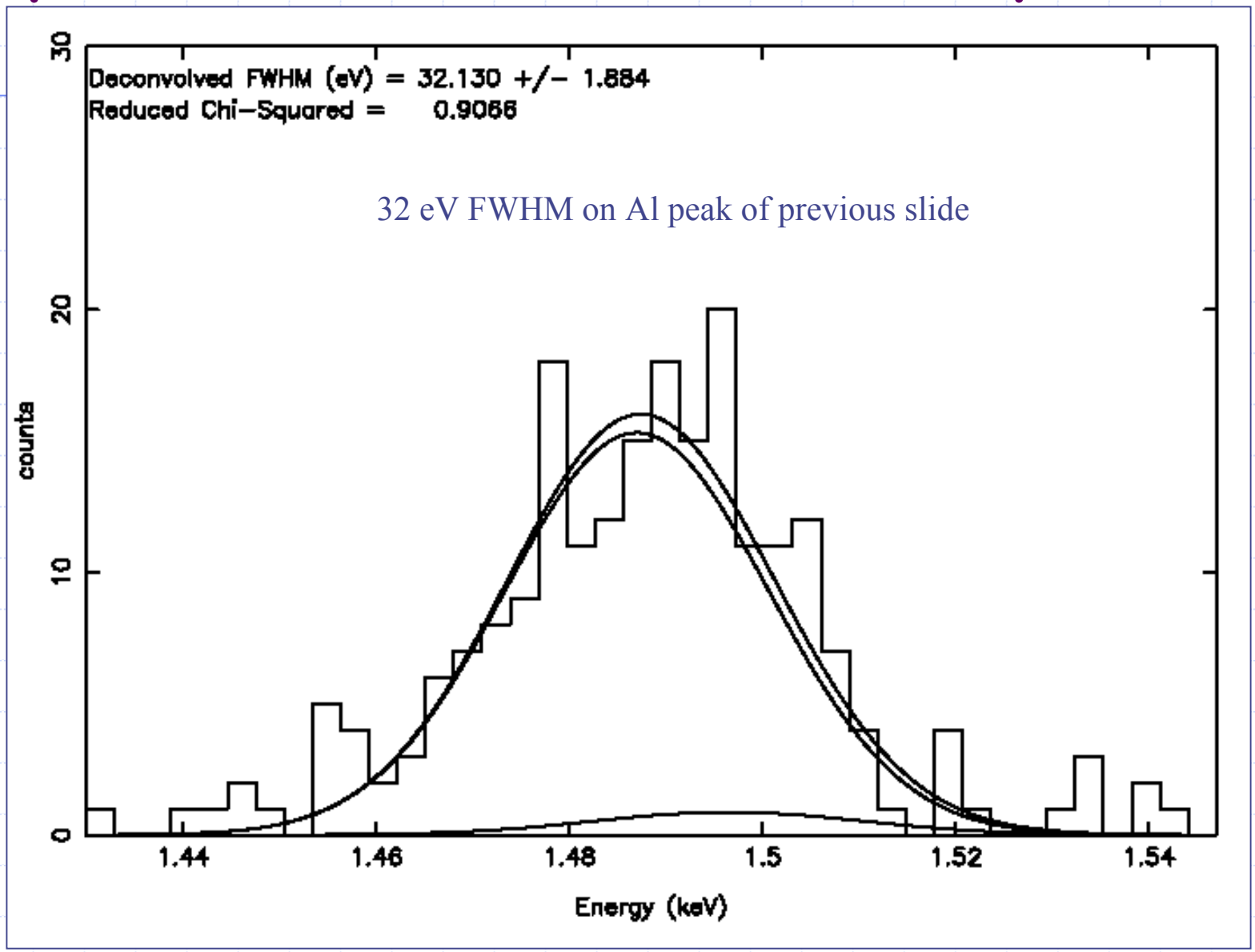
Second run of same device



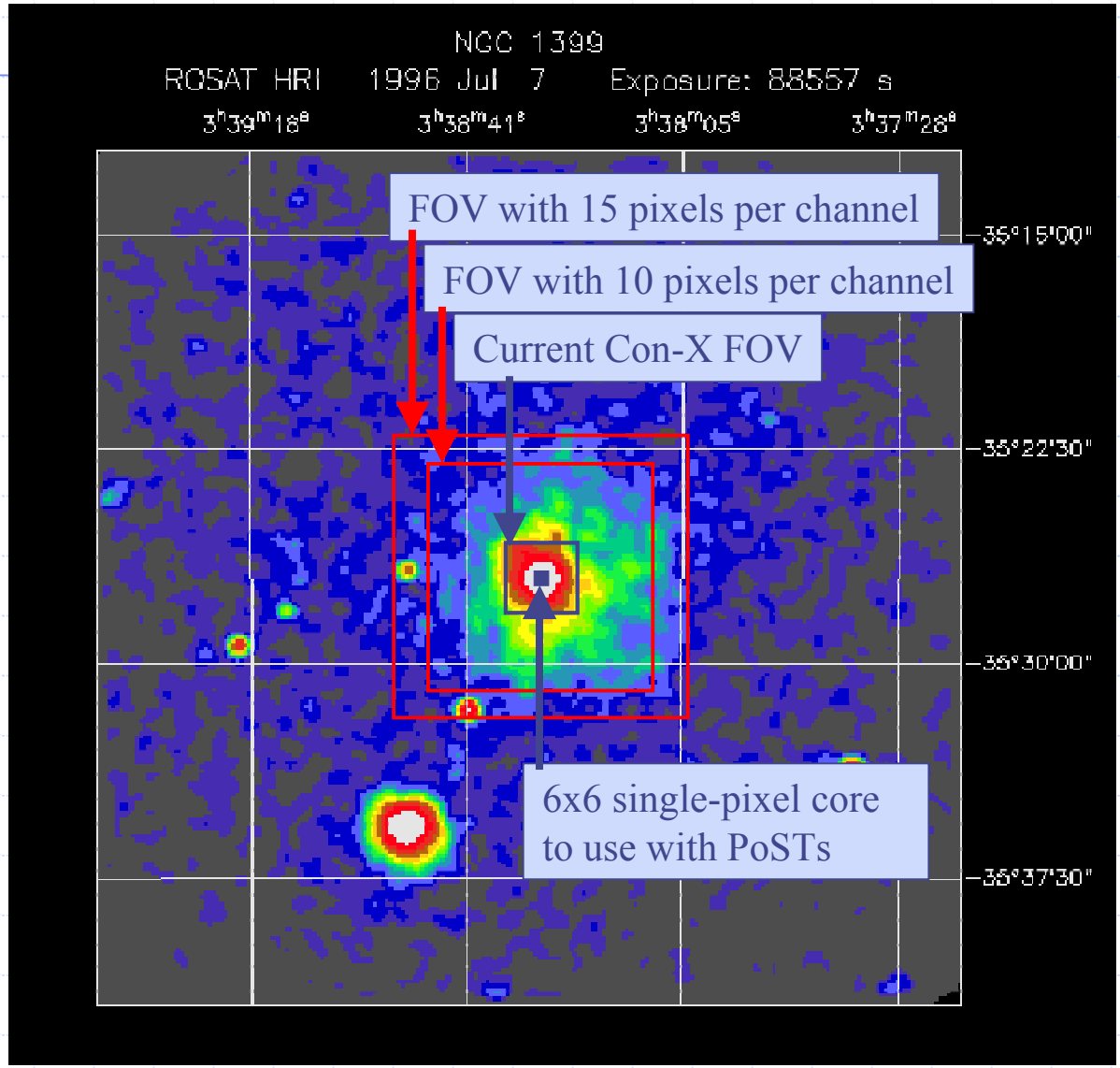
7-pixel PoST spectrum on pixel 1



7-pixel PoST resolution on pixel 1

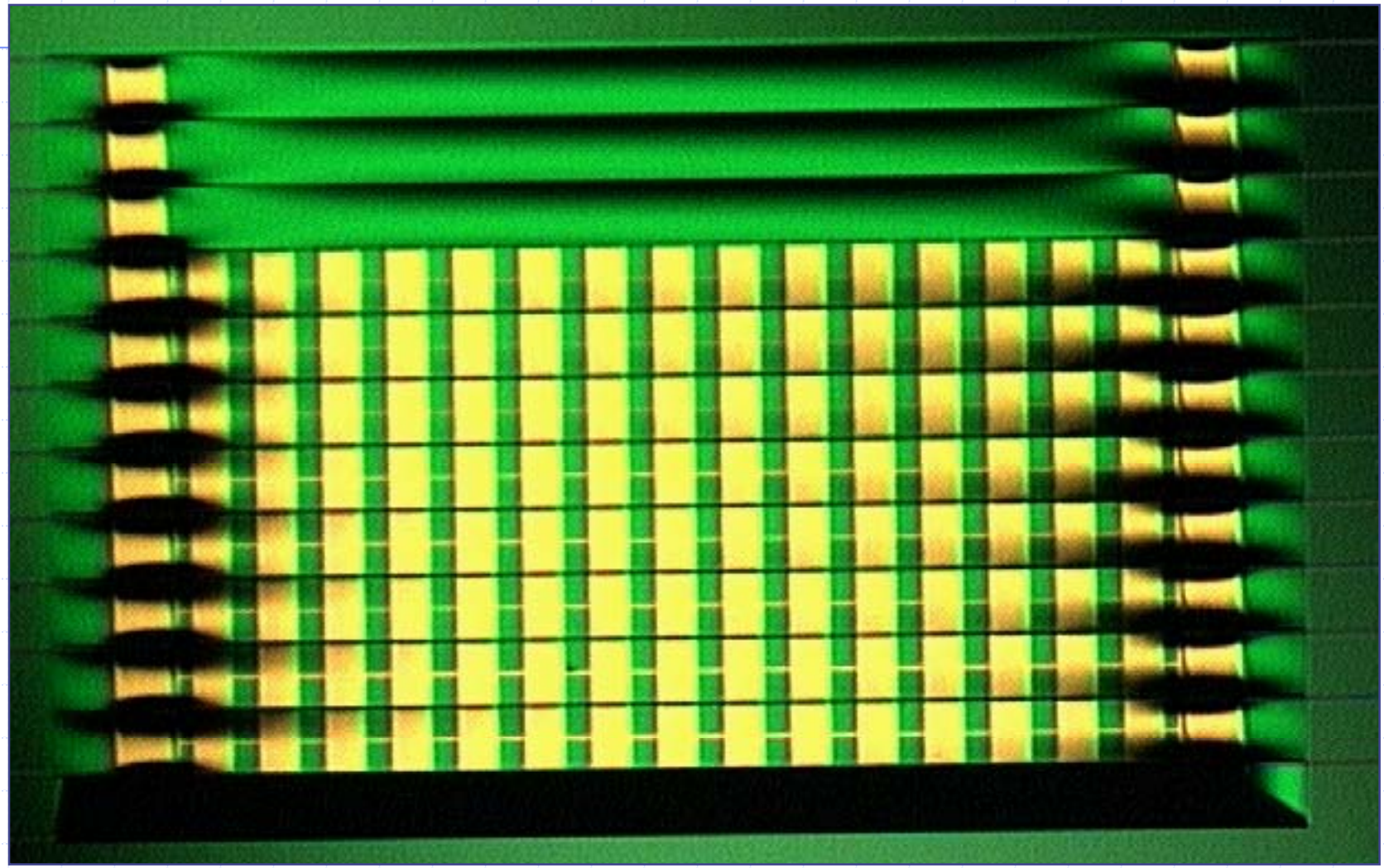


The power of multiplexing pixels

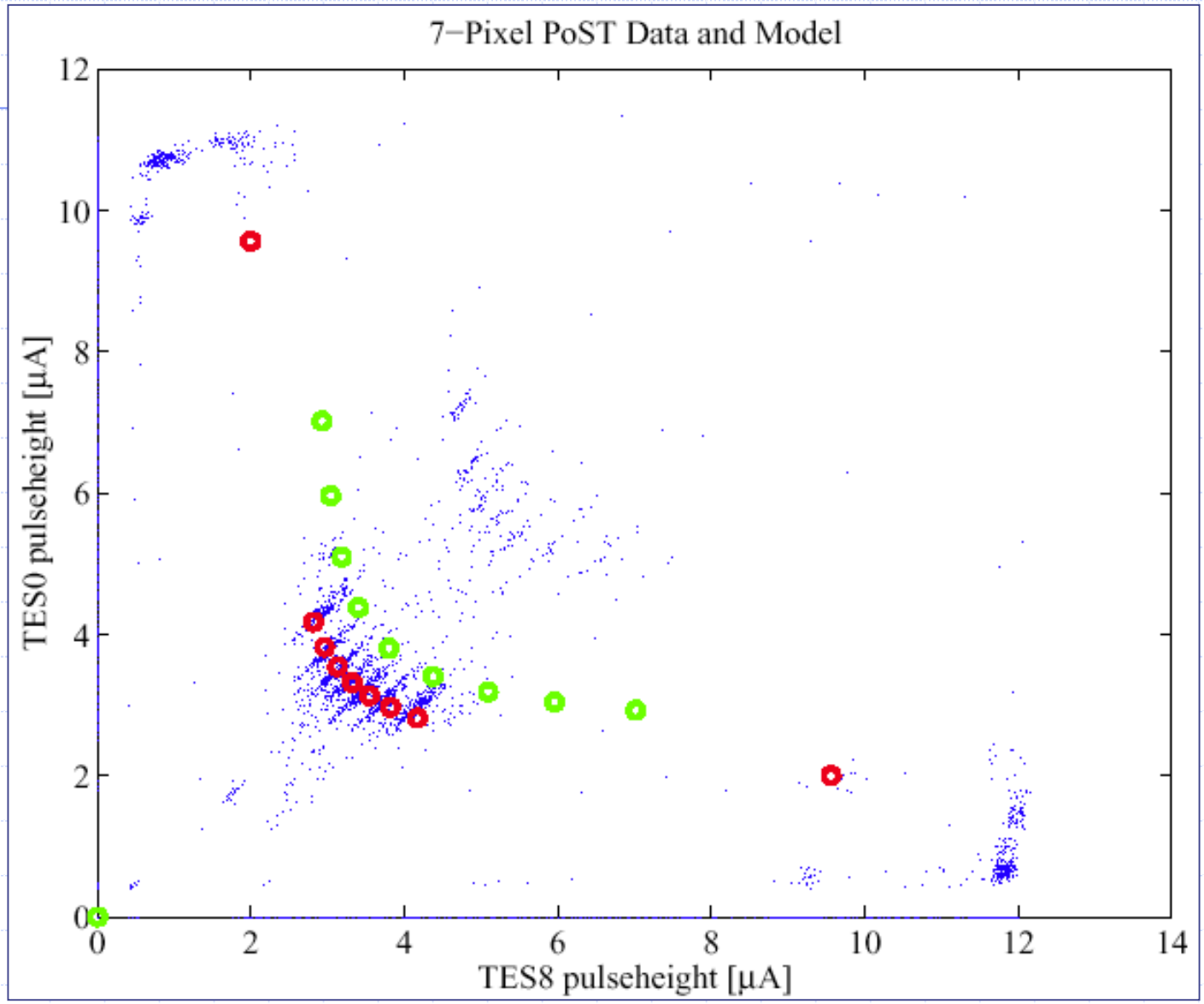


Additional Material...

15-pixel PoST



PoST model with Gta = Ga



Superconducting leads source of G?